

ABSTRACT

AIM AND OBJECTIVES:

1. To study and record the histogenesis and histodifferentiation of the components of human fetal thymus in various gestational ages by haematoxylin and eosin staining.

2. To clinically apply the knowledge of histogenesis to diagnose certain autoimmune disorders like myasthenia gravis.

MATERIALS AND METHODS:

20 human fetuses of different groups ranging from 10 to 31 gestational weeks were procured from the Department of Obstetrics and Gynaecology, Raja Mirasudar Hospital, Thanjavur Medical College.

The fetuses were dissected and thymus removed. The tissue samples were fixed in formalin, processed to prepare paraffin embedded blocks and 4-5 micron thick sections were cut. The slides were stained with Haematoxylin and Eosin, Mason's Trichrome, Von-Gieson's, and Gomori's Reticulin stains and Periodic acid Schiff were studied under light microscope.

OBSERVATIONS:

20 fetal thymuses of 10 to 31 weeks of gestational age were considered and classified into five groups as described by R.K. Ajita et al. All the specimens were analyzed and plotted against age groups.

DISCUSSION:

In the present study, the lymphocytes were observed from 10th week. Lobulation started by 12th week and completed by 15th week. The cortico medullary differentiation started at 15th week and more distinct by 18th week. Blood vessels and epithelial cells were seen by 10th week in the trabeculae. Macrophages were seen from 12th week. The number and size of the Hassall's corpuscle increased during 18th- 24th week.

CONCLUSION:

The present study concludes that in the histogenesis of human fetal thymus, significant cellular events like lobulation, corticomedullary differentiation and the appearance of Hassall's corpuscle all takes place between 15th and 18th week of gestational age. Thereafter the microscopic growth and maturity takes place in the form of increase in size of lobules, blood vessels and increase in size and number of Hassall's corpuscle.

Hence the period of gestation between 15 and 18 weeks is critical for the development of fetal thymus. Any insult occurring to the developing thymus in the form of radiation or drugs can affect its histogenesis leading to impaired immunity.

Key words:

Fetal thymus, lobulation, gestational age, Hassall's corpuscle, corticomedullary differentiation.